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US ARMY WAR COLLEGE
INDIVIDUAL RESEARCH BASED ESSAY

A COMPARATIVE ANALYSIS OF RIVER CROSSING OPERATIONS
IN THE TWENTIETH CENTURY

BY

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TABLE OF CONTENTS

	Page
INTRODUCTION	1
Factors Affecting River Crossing Operations	2
Impact on Organization, Equipment, and Procedures used During Crossing Operations	4
PURPOSE OF THE PAPER	7
THE GERMAN EXPERIENCE.	8
THE RUSSIAN EXPERIENCE	12
THE AMERICAN EXPERIENCE.	16
CONCLUSIONS.	20
ENDNOTES	22
BIBLIOGRAPHY	24

INTRODUCTION

Throughout the history of warfare, river crossing operations have been recognized as one of the most difficult, complex combat operations to undertake. Great Captains have marched their armies miles out of the way in order to forego having to execute a river crossing operation. Attacking armies have been delayed while scouts searched for easy, undefended crossing sites. Defending armies have frequently used rivers either to anchor their defensive lines or as a baracade behind which to deploy their forces. Rivers have been used many times as a means to enhance economy of force operations in support of the main attack. Rivers have traditionally had such tactical, strategic, and political significance that invasions have been stopped at the river's edge for a lack of sufficient force to cross and politicians have used rivers as natural geographical boundaries during peace settlements. This importance attached to rivers is a consequence of the military vulnerabilities associated with any attempts to cross rivers by force.

Rivers, moreso than any other obstacle, pose a unique set of challenges to an army attempting to cross. Each river with its surrounding terrain is different thus requiring an especially tailored mix of men, equipment and tactics to execute a successful crossing. The appropriate mix is arrived at by the commander after a careful consideration of certain key factors that can be found in varying degrees of importance in all crossing operations.

The nature of the threat is perhaps the most important consideration. Answering the question, "is the threat large or small, distant or proximate?", will serve the commander well in deciding his approach to crossing the river. These questions apply whether the army is attacking or withdrawing. For example, if the threat is large and nearby a commander would likely have to withdraw his combat forces after everything else had crossed the river. Conversely with a small, distant threat that is known to be growing as it approaches, the commander would likely withdraw most of his combat forces early to set up new defenses on the other side of the river. In any event, the point is made that the nature of the threat is a fundamental consideration in solving the problem of crossing rivers under combat conditions.

Though not fully appreciated by high level planners, the size of the river significantly affects the way in which rivers are crossed. For rivers in excess of 200 to 300 meters the normal sequence in the attack is: (1) assault swim in APC's and/or rubber boats; (2) rafting, and (3) bridging. The sequence is reversed for a retrograde. Most armies of the world use this sequence because it makes sense and because it fits the tactical situation. However, for smaller rivers it doesn't always apply. Many times for rivers of 30 to 300 meters in width it may be better to go directly to bridging without the rafting step because such a course of action allows much faster rates of crossing. With modern bridging equipment it is almost as fast to build a bridge on small rivers as it is to build a raft.

The velocity of the water flow is important to the planner only when those velocities approach the design limits for the crossing equipment being used. For example, APC's cannot swim in fast currents.

On the other hand, the nature of the terrain is always important.

This is especially true of the terrain in the vicinity of the river, because this terrain determines the location and size of assembly areas and marshalling yards, and redundancy of routes leading to and from the crossing sites. These facts play a critical role in the speed with which units can be pushed across the river and in the amount of protection that must be provided to them while they are in the crossing area. Open terrain with little concealment is a nightmare for the crossing unit and results in slower rates of crossing in order to provide protection through dispersal. Very difficult terrain also slows the rate of crossing for obvious, but different, reasons. The selection of the right place to cross a river can spell the difference between success and failure to a combat commander.

The way in which a commander decides to cross a river also depends on the forces he has available. In this regard, both the nature of these forces and their size is important. A tank heavy force obviously needs different crossing equipment than does a mountain infantry force. The choice of a day or night crossing, the decision to start bridging operations early, and the size of convoys allowed to the crossing site are governed by the availability of air superiority and by the ability of the crossing commander to keep the bridge sites from direct observation by the enemy. The key question is whether or not the crossing commander has enough forces to keep the enemy from hurting him while he is in the act of crossing his forces. This force must be large enough to compensate for the fact that maneuver is severely restricted on a bridge and that enemy firepower enjoys the luxury of shooting at a point target.

As with any military operation, someone has to be in charge if

there is going to be any chance for success. The requirement to control and coordinate such diverse functions as security, traffic operations, engineer bridging and route maintenance, recovery of disabled and damaged equipment, not to mention the need to coordinate march tables and to sequence units being crossed, make the selection of the controlling headquarters a critical one. Obviously, if a unit is only going to cross itself that headquarters should be in charge. Less obvious is the usual case where several independent formations are crossing at different times. Does the overall commander, in whose sector the crossing is conducted, appoint one headquarters to manage the crossing for its useful life or does he transfer this management from unit to unit as they enter the crossing area. This is not a light decision. After all, the unit actually crossing is responsible to the overall commander for its combat effectiveness. Yet at the same time, this unit might not have enough experience in the peculiarities of managing a river crossing and, through this inexperience, jeopardize that same effectiveness it has been charged to maintain. The decision is further complicated when one considers the number of troops required to manage and control a river crossing operation. It is not unusual to find for one bridge crossing site a platoon of MP's, two companies of engineers, a communications platoon, an air defense battery, plus some ground security. The numbers grow rapidly as the number of bridge sites are increased. While the easiest rule is to have the headquarters controlling the crossing formations in charge, as we shall see from historical and current examples this is not always the best case.

The primary purpose for analyzing the factors mentioned above is to decide what organization, equipment, and procedures to use in successfully crossing the river. Other decisions may also be considered, but

these are the critical ones to the success of the mission.

As indicated earlier, each river crossing operation is different so it is natural that the organization used to manage and control the operation should be tailored to suit this difference. Military police, engineers, air defense, transportation, and other assets are added or taken away depending on the threat, terrain, forces available, who is in charge, and size of the river. Even the size of the infrastructure needed to control and coordinate the operations can vary based on these factors. One thing remains unchanged, however. Every river crossing operation needs an organization to serve as the communication and coordination focal point for issuing and receiving instructions and controlling activities. Just as importantly, in every successful river crossing operation someone has to be in charge.

Obviously, if river crossing operations are each different, the equipment requirements will also be different. This fact not only applies to the engineer bridge equipment used but also to the support equipment used for security, logistics, and maintenance of the routes of ingress and egress. In fact, commanders can make major errors by assuming that the equipment requirements to support a river crossing are standard or are of minor importance. Often times crossing rates cannot be met for such "little" things as the lack of a means to stabilize the approaches to and from the river so that traffic can move quickly through the quagmire.

Finally, the procedures used to move forces across the river is affected by the nature of the threat, size of river, nature of the terrain, forces available, and level of organization controlling the crossing. At one extreme, for small crossings with few forces involved

and minimal threat, the procedures are simply go to the river and cross when it is your turn. Crossing major forces under threat of enemy action, on the other hand, requires detailed movement tables, contingency plans for delays, and a well rehearsed deception plan to fool the enemy as to where the main crossing will occur. In general, the more forces involved in the crossing, the more complicated and detailed must be the procedures to insure a smooth, steady flow of men and equipment to and across the river. Since delays for one reason or another are inevitable and since speed is critical to reduce force vulnerability at the river line, these procedures must be well known and well rehearsed by all leaders involved. This is especially true because river crossings are not daily occurrences for military forces except those with special river crossing missions.

This background sets the stage for an analysis of several river crossing operations that have occurred in the 20th Century. While we will look at all the factors involved and their effects on organization, equipment, and procedures used, I intend to narrow the scope of this effort by focusing on corps or equivalent level operations and leave smaller operations to another study. This seems reasonable, given the complexity of corps level operations and given the fact that they are the more important to the successful accomplishment of the strategic plan.

From this historical study, I propose to draw some organizational conclusions for the United States Army. This emphasis on organizational matters rather than equipment or procedural matters results from my conviction that the necessary equipment for successful crossings already exists or is being developed and the best procedures can be readily determined if the organizations know what they are doing. Organiza-

tionally, however, the United States Army lacks units specifically dedicated to the preparation for and execution of river crossing operations at the corps level. There are no fully capable units where the expertise and command and control equipment resides in sufficient detail to insure success of a very difficult, complex operation that is rather infrequently executed.

The purpose of the paper, therefore, is to investigate the organizations used for command and control of river crossing operations at corps level by the major armies of the 20th Century.

As part of this investigation we will look at the German, Russian, and American Army organizations used for river crossing command and control. Partially this will be done through an investigation of several World War II river crossing operations in both an attack and a withdrawal mode and an analysis of the current organizations existing in the armies mentioned. From this research will come several conclusions that address the sufficiency of the present United States Army organization to prepare for and execute river crossing operations.

THE GERMAN EXPERIENCE

Forced crossings thus belonged virtually to the daily bread of the German soldier. At the start of the Russian campaign, the German Army was able to commit a body of field forces and an officer corps with peacetime training in the techniques of forced river crossings. That picture changed as the campaign exacted its toll of casualties. The raw replacements were a far cry from the thoroughly trained and self-assured fighting men of the peacetime army. In 1941 all major river crossings succeeded, many of them with surprising speed. Later, the crossings no longer went off with the precision of 1941. The reason lay not in the nature of the watercourses, but in the composition of the troops.¹

The above passage, taken from a study done after World War II by former German generals, illustrates the critical role played by the forces available to the success of river crossing operations. The Germans discovered the hard way the importance of expertise and training to forced river crossings. In fact, as the campaign developed, the German Army had to make special provisions to protect its river crossing expertise to insure its availability for later operations on the Eastern Front. As we shall see, they dealt with this problem by forming provisional crossing organizations to manage large scale (corps level) crossings.

The study continued with a discussion of the effects of river size and the surrounding terrain. Most rivers in Eastern Europe flow north and south with a major water obstacle to East-West movement found every 60-100 km. The rivers were each unique, but with some broad similiarities. The western bank was usually the higher of the two banks. For the most part, the rivers were slow and had an irregular bottom profile

thus making bridge construction somewhat difficult. The river bed was usually soft which necessitated a change to the pre-engineered bridge footers carried by the German Army in its advance. Furthermore, the extremes in weather caused the German Army much difficulty in constructing bridges that could withstand the annual ice flow problem and the flooding problem since virtually none of the rivers were regulated as in Western Europe. Generally speaking, each river had a flood plain on each side that forced the construction of long causeways to and from the bridge itself to make it usable during the spring thaws. It was not uncommon to find water gaps of 100 yards requiring bridges of 600 yards to span the flood plains,² nor was it uncommon to build three bridges at one site. The first was an assault bridge; the second a temporary bridge to free the assault bridging for further use; and the third, a bridge reinforced enough to withstand the ice flows and floods. The nature of the terrain and the size of the river placed a premium on maintaining organizations with the expertise to deal quickly and effectively with water obstacles.

During the initial phases of the eastern campaign, the German Army was successful quite often in capturing bridges intact principally because of the weakness of the Russian resistance. Where they were not able to do so, forced crossing from the march were executed by the attacking divisions with follow-on bridging and maintenance of the bridge head area falling on corps and Army personnel. As the resistance stiffened in 1942 and 1943, such ad hoc river crossings were not as frequently undertaken. While the nature of the threat influenced the German response, the sequence of actions usually followed the classic line of: (1) try to capture a bridge intact; (2) force the river before the retreating Russians could set up defensive positions; (3) conduct a

deliberate river crossing.

As the nature of the threat grew during late 1942 and 1943 these techniques worked less and less well principally because more forces were required to establish the beachheads. With larger formations assembling on the battlefield over very few roads, larger and larger traffic jams were experienced. This situation forced the German high command to increasingly conduct river crossing operations as a corps level operation with a designated headquarters being responsible for operations in and around the river line. In fact, in one operation the corps had to use a division headquarters as the controlling headquarters in order to unsnarl the advancing columns and to coordinate the activities of engineers, military police and moving units. While it was recognized that such a decision took a fighting headquarters out of the advance, there was no alternative under the circumstances. This misuse of a headquarters staff was to repeat itself several times until 1943, when a provisional headquarters was established to orchestrate major crossings.³

By September 1943, the German high command had discovered the value of forming special units to command and control river crossings as the retrograde crossing of the Dnepr River illustrates. With the Russian armies advancing on a broad front, Army Group South was in danger of being pinned against the banks of the Dnepr River. The problem was to move ten combat divisions with their equipment plus thousands of refugees across a 2500-3000 foot wide river on only one standing bridge and a floatilla of small boats. The corps established two provisional staffs, one on each side of the river to control traffic, to maintain routes into and out of the crossing area, and to coordinate the defense within their geographical area. The mission was a complete success with

all divisions and equipment crossing the river in spite of heavy Russian pressure. The report of the crossing credited the fact that one corps commander was placed in charge of the tactical actions in the vicinity of the crossing, as well as having the same man responsible for the technical activities of the engineers, military police and other supports units. That he was successful was due in large measure to the establishment of two provisional headquarters to manage and coordinate the activities on each side of the river.⁴

The Germans learned their lessons well from the experience on the Eastern Front. In terms of organization, equipment, and procedures used, the German Army of today reflects these realities learned through much blood, sweat and tears. Every German Corps has a bridging battalion fully capable of organizing and coordinating a major river crossing operation. It has the necessary communications equipment and the necessary support equipment to establish a crossing area headquarters to act as the corps commander's provisional staff for the administrative and technical problems of a river crossing and, when augmented by the military police, can serve as the infrastructure for a crossing command. In addition to the bridging in the battalion, there are combat engineers for road repair and maintenance and defensive preparations. In essence, each corps has its own river crossing experts with sufficient capability to control actions around the river line in support of the corps commander's tactical plan. Furthermore, German river crossing doctrine makes this organization responsible to the corps for the orderly flow of men and equipment across the river. No longer do they have to pull a combat headquarters out of action for this purpose, nor do they strip other staffs to form a provisional one to conduct a river crossing.

THE RUSSIAN EXPERIENCE

"During the course of the war, the ability of the Russians to cross even the largest rivers was always a source of amazement to the Germans."⁵ Oftentimes the Russians could put in place ten or more times the number of bridges as the Germans could. Partially this situation reflected a shortage of equipment for the Germans but mostly it reflected greater technical expertise and greater innovative skill on the part of the Russians. They could quickly make tank carrying rafts out of layered logs or bridges out of locally available material, whereas the Germans were much more dependent on using their pre-engineered bridge equipment which in the latter stages of the war was in short supply.⁶

The Russian approach to crossing rivers differed markedly from that used by the Germans. Russian crossings were, by in large, decentralized affairs with each unit responsible for its own crossing using whatever materials were handy. The result was many bridges across a wide front. For example, the Germans placed one bridge every 40 miles across the Dnepr, while later across the same river the Russians managed one bridge every four miles for a total of 66 bridges across the attacking front.⁷

The Russian actions, faced with a defended river line followed generally the German sequence. Light infantry or airborne forces would attempt to secure the far shore, followed by makeshift rafting operations to get tanks and artillery across, and finally, bridges to move major formations. Oftentimes this sequence failed because of the

strength of the German defenses, but the Russians remained unconcerned because of the vast numbers of soldiers available to try again and again. Their infantry suffered tremendous losses, but in the final analysis the Russian superiority in numbers prevailed and at least some of the bridgeheads were successful along the front. Using this broad front approach to dealing with the enemy threat, the Russian placed great emphasis on deception planning to lure the defender into thinking that the crossing would occur somewhere other than its preplanned location. This use of secondary crossing sites served to force the deployment of German reserves away from the main crossing site, thereby facilitating the Russian success in the main attack sector.⁸

The size of the river and the nature of the surrounding terrain was taken in stride by the Russians. It was, for the most part, familiar terrain to them and the civilians were friendly — all of which cut down on the logistic support needed to conduct crossing operations. In fact, the Russians became masters at crossing rivers with little in the way of food supplies, and other support items . . . all they were interested in was the crossing of men, guns, and ammo. The Russians faced the same problems of ice flows, flood plains, and poor roads near the rivers as did the Germans. Their solution, however, was very different. While the Germans were forced to deal with spring thaws and summer rains, the Russians preferred to take the offensive in the winter months, thus avoiding many of the river crossing problems caused by the size of the river and the nature of the terrain.

During the latter stages of the war, the river crossing forces available to the Russians were awesome. In addition to the engineers found at division and corps level, there were Engineer Divisions at Army

level especially designed for river operations. These engineer divisions had railway bridge battalions, heavy bridge battalions, emergency bridge battalions, and road repair units. Additionally, signal and military police units were assigned.⁹ All in all, the Russians established a formidable force that specialized in river crossing operations. Furthermore, as the war turned in their favor, the necessary equipment needed to support crossing operations became more plentiful though it was never enough because the industrial base was hard pressed to keep up with the armament needs of her vastly growing armies.

As mentioned earlier, the Russians tended to decentralize their river crossing operations because of the broad frontage concept in their tactical doctrine. Although western sources know very little about how they organized the command and control of crossing operations, one can presume that Army or front controlled crossings were rare. One reason for this is the relatively small logistics tail that followed their divisions during the Second World War.

As was the case with the German Army, the Red Army of today reflects in detail the lessons they learned from their experiences and problems encountered during the Second World War.

Soviet planners expect to face a water obstacle every 60 km and with planned advances on the order of 100 km per day, they have organized to cross a river every day. They have placed river crossing capability at division, Army, and front levels in great numbers. In fact, as their doctrine shows they are very serious about having sufficient engineer assets to cross on the march any river encountered. These assets include more than just bridging equipment, it also includes the necessary communications gear and route maintenance capability to insure success.

Their bridging and rafting equipment is among the most modern in the world and there is plenty of it. Never again will they have to do without at the beginning of a war. Their prestock yards are full of a variety of equipment ranging from railway bridge components to pre-engineered float bridges and, I suspect, pre-engineered underwater bridges. Their assault bridging is designed for rapid emplacement and is relatively invulnerable to small arms fire.

Procedurally, their doctrine calls for advances along a broad front as in the past. However, with the advent of wholesale mechanization their lines of communication are more important and more difficult to manage than before. For this reason, we see an increased emphasis on river crossing command and control organizations. In fact their doctrine calls for a crossing area commander, probably from the Army level using the infrastructure, and communications and staff support from the Army engineer headquarters, thereby not drawing assets from the attacking units.¹⁰

In sum, it is clear that the lessons of World War II found their way into the current Russian organization, equipment, and doctrine used for River Crossing Operations.

THE AMERICAN EXPERIENCE

In his book, A Soldier's Story General Bradley relates a story from General Patton concerning the crossing of the Moselle River, then at a record 50 year flood stage. Patton told:

. . . of an engineer company that had struggled for two days to string a pontoon bridge across the river. On the day it was completed, a tank destroyer started across the steel planking to the far shore. As it neared the end, it suddenly veered off the planking and snapped the cable anchoring the bridge to the shore. In an instant the structure snaked and tumbled off downstream. 'The whole damn company sat down in the mud,' Patton said, 'and bawled like babies.'¹¹

This is but one of many examples of the tenuous nature of crossing rivers under combat conditions. When one adds the force of opposing arms, one can appreciate the acute vulnerabilities of forces in the act of crossing rivers. To the American Army in World War II, with its emphasis on protecting American lives while accomplishing the mission, the selection of crossing sites became more than a technical decision of whether or not a crossing could be made. It became a strategic decision of locating the point of least resistance and tactical plans were adjusted accordingly. In fact, this emphasis on enemy dispositions, was one reason that river crossing planning was usually done at corps and Army level for execution by divisions. In contrast to the German and Russian experience, the American way of considering the threat was to centralize as much as possible the initial phases of river crossing planning.

The size of the river and the nature of the surrounding terrain

played a critical role in relation to the American concern about the nature of the threat. Those forced crossings that resulted in rapid deployment away from the river line were the more successful. Conversely, where crossing sites produced bottlenecks on the far shore, either from enemy action or from natural causes, the crossings were more difficult and casualties were higher. The 29th Division, in its crossing of the Roer river as spearhead for the XIX Corps, serves as a case in point. The main crossing site ended in the town of Julich which was surrounded by wooded hills. Though the Division achieved tactical surprise and was able to put a bridge across the River, much delay and heavy casualties were taken in clearing the roads through town and securing the wooded hills. A sister division, the 30th, making a simultaneous crossing further away had little difficulty because they were able to move from the river line much more easily due to the more open terrain.¹¹

The American use of forces available to support river crossings generally followed the German pattern. The crossing of the Rhine River by the XII Corps, described as, "... one of superior merit and ... could well serve as a model for future crossings," called for one division to make the crossing with all engineer and other support work done by Corps and Army units thereby freeing the divisional resources for the fight on the far shore.¹² In fact, it is often the case that Engineers would control the bridge sites and have attached to them the necessary smoke capability and security forces necessary to protect the site from sabotage. In some cases even artillery was placed in direct support of the crossing site commander for counter battery fire.¹³ As with the German Army, the American emphasis was on the deeper objectives with the river merely an obstacle that had to be overcome.

The number of support troops available to assist in a major river crossing was awesome. For a division spearhead, one could often find an engineer brigade in direct support along with as many as four or five engineer battalions and assorted separate, specialized companies. For a two division simultaneous crossing this could be doubled. Additionally, there were smoke battalions, AAA batteries, artillery and signal units all involved.

With this diversity of assets involved in a rather confined space on the ground, communications and control was an ever present problem. Whenever a major river such as the Rhine, Roer, or Moselle, was involved, a corps headquarters was placed in charge of coordinating the crossing. Invariably, this situation lead to the use of engineer assets to provide the infrastructure such as lines of communication, staff planning, and contingency actions to protect the bridge. In fact, the corps commander looked to his engineer for information about the bridge sites and for solutions to any problems of congestion and local security. Basically the engineer organization served as the corps commander's staff for operations in the vicinity of the river line, thereby freeing the corps staff to plan future operations.¹⁴ This technique guaranteed a body of expertise and experience in river crossing operations would always be available to the corps whenever needed and kept the Americans from the trap that the Germans found themselves in when casualties began to sap their experienced river crossing planners and coordinators.

Unlike the German and Russian Armies of today, however, the American Army has not fully incorporated its hard fought lessons of the Second World War.

At the corps level there are no fully capable bridge battalions in our force structure. In fact, only in Europe are there even partially capable river crossing units available, and these are organized without the necessary communications gear and construction equipment for preparation of the river line and protection of the bridge sites. The present corps engineer capability can barely provide one battalion in direct support of a crossing division and has virtually no capability to provide the infrastructure to act as the corps commanders staff for crossing operations.

With the exception of the new bridging equipment itself, little has been learned about the need for improved river crossing equipment (we still use a pole to obtain a river profile) or the need for sufficient communications equipment to talk with the many different units involved in the vicinity of a river. The list of shortcomings goes on but the point is made that Americans will cross rivers during the next war using equipment from World War II.

Doctrinally, we still place responsibility for actions at the river line in the hands of crossing units which creates tremendous hand off problems and clouds the contingency planning process. Unlike the Germans and the Russians, American Engineers are not in charge at the bridge sites which frequently causes at best a duplication of effort when both engineers and crossing units call for replacement bridging and at worst causes the loss of the bridge due to the natural confusion that occurs when the bridge comes under enemy attack. We have not learned the lesson of keeping the focus of the crossing unit on the battle across the river and leave the crossing problems to the support units on site and knowledgeable about ways to solve the difficulty.

CONCLUSIONS

This brief survey of river crossing operations by the major armies of the Second World War would not be complete without mentioning the British and the French Armies. During the war they used, in general, the American crossing techniques with some national flavor. Today their armies have bridge battalions at each corps level with the capability to control activities at the river line. In essence, their organization for crossing rivers looks very much like that of the German Army.

One conclusion becomes immediately obvious. In every case during World War II some kind of organization was used to control the activities of those many different units involved at the river line. With crossing units, engineers, signal, artillery, air defense, smoke, and local security forces involved there had to be an organization dedicated to the smooth, rapid, safe movement of combat forces across the river. Initially, that function was performed by the division staff of the lead division. After its crossing, corps or Army units provided the staffing infrastructure to keep things on track. This requirement existed whether the Army was attacking across the river or falling back across the river to new defensive positions.

The kinds of organizations used varied depending on the Army and the circumstances. The Germans sometimes used standing organizations such as division staffs or created ad hoc staffs to control the operations. The allies generally used the engineer organizations as a special staff of the corps for this purpose. Little is known for sure

about the Russian solution except to say, as their logistics needs increased during the course of the war, they tended to use specially trained staffs for crossing operations. In any event, history shows that the more successful crossings occurred when the organization, wherever it came from, stayed in place for the duration of the crossing, or until fixed bridges could be constructed. The fewer the hand offs between controlling organizations, the smoother and faster the operation went. More importantly, crossing operations that were controlled by regularly constituted, as opposed to ad hoc, staffs seemed to work better, especially if that staff could be dedicated to the crossing mission. Such an arrangement brought to the operation the necessary communications, maintenance and other support equipment as well as the capability to coordinate activities in the detail needed when so many different units were involved.

The lessons of World War II were not lost on the European Armies. All presently have engineer bridge battalions assigned to each of their corps or equivalent sized organizations. These bridge battalions form the nucleus of the river crossing staffs necessary to coordinate activities at the river line and have organic or attached to them the necessary communications, traffic control, and combat engineer assets to effectively manage a crossing operation at corps level. In fact, except for small independent division level forced crossings, it appears that all European Armies expect the corps to be the focus for planning and executing major river crossing operations.

Since the United States Army chose not to adopt this approach to river crossing operations, one wonders if we are not bound to repeat the mistakes of the European Armies of World War II? Only time will tell.

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